



Technical Catalogue



FAS Series

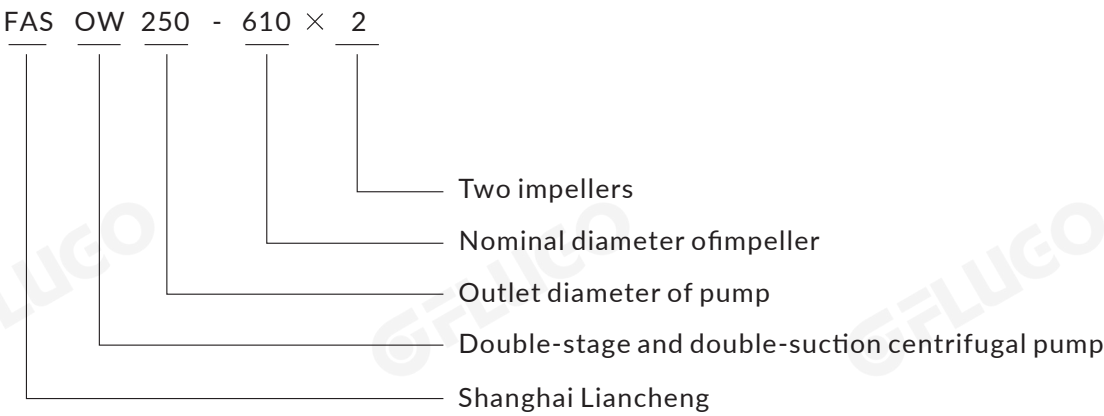
Double-Suction Split Casing Pump

Product Outline

FAS Centrifugal Pump of double-stage and double suction bisect volute type is specially designed and manufactured by our company for using in the occasions which require large flux and high lift, such as iron works, electric power plants and pump station, etc. In combination with advanced design experience of double-stage bisect pump at home and abroad, the product are processed by using special machine tool. This product is applicable for feeding such media as water or liquid similar to water at the temperature from -10°C to 80°C

- ☐ Water inlet and outlet are all installed in pump body. Just hoist the pump cover when overhaul, greatly facilitating maintenance.
- ☐ Primary-stage double-suction and secondary-stage single-suction of impeller adopted, greatly improving anti-cavitation performance of pump and decreasing axial dimensions of pump.
- ☐ At rotary speed of 1480 rpm, avoiding vibration caused by high rotary speed.
- ☐ In comparison with single-stage pump, the product have same performance and smaller impeller diameter and stable operation.
- ☐ The pumping chamber adopt double-volute design, reducing radial force.
- ☐ Applying rolling bearing and lubrication with grease or thin oil and facilitating the maintenance of bearing.
- ☐ Designing in virtue of international advanced hydromechanics software, modeling by using 3DM software, and checking the strength with finite element software, ensuring high efficient, stable and reliable operation of pump.
- ☐ Fully mechanical seal ensure no leakage within 8000 hours, an packing seal is customizable.
- ☐ The pump turns clockwise, and anticlockwise turning is customizable.
- ☐ This product has applied of national patent (patent number: ZL200520046059.0)

About the Model

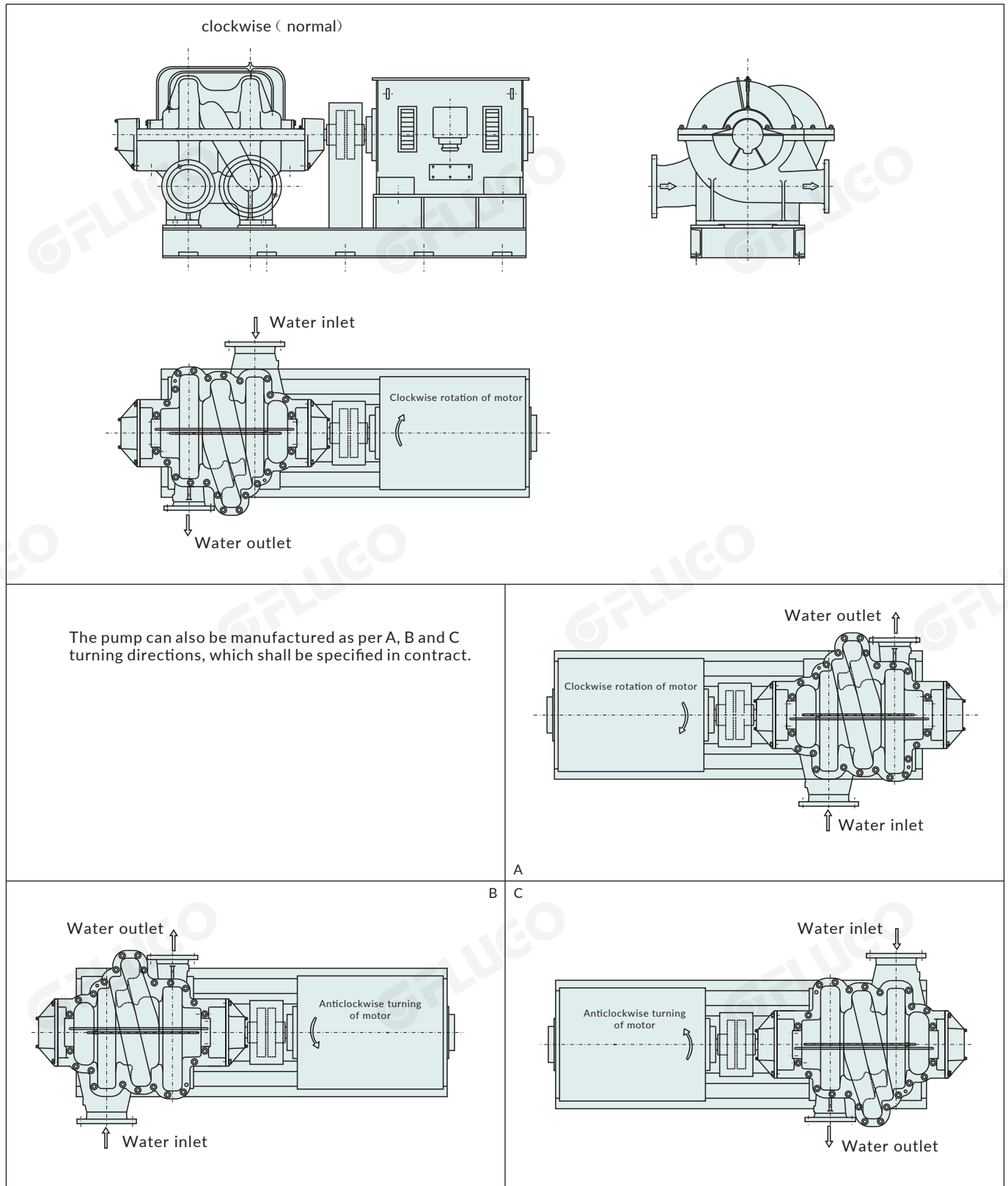


Main Part Material

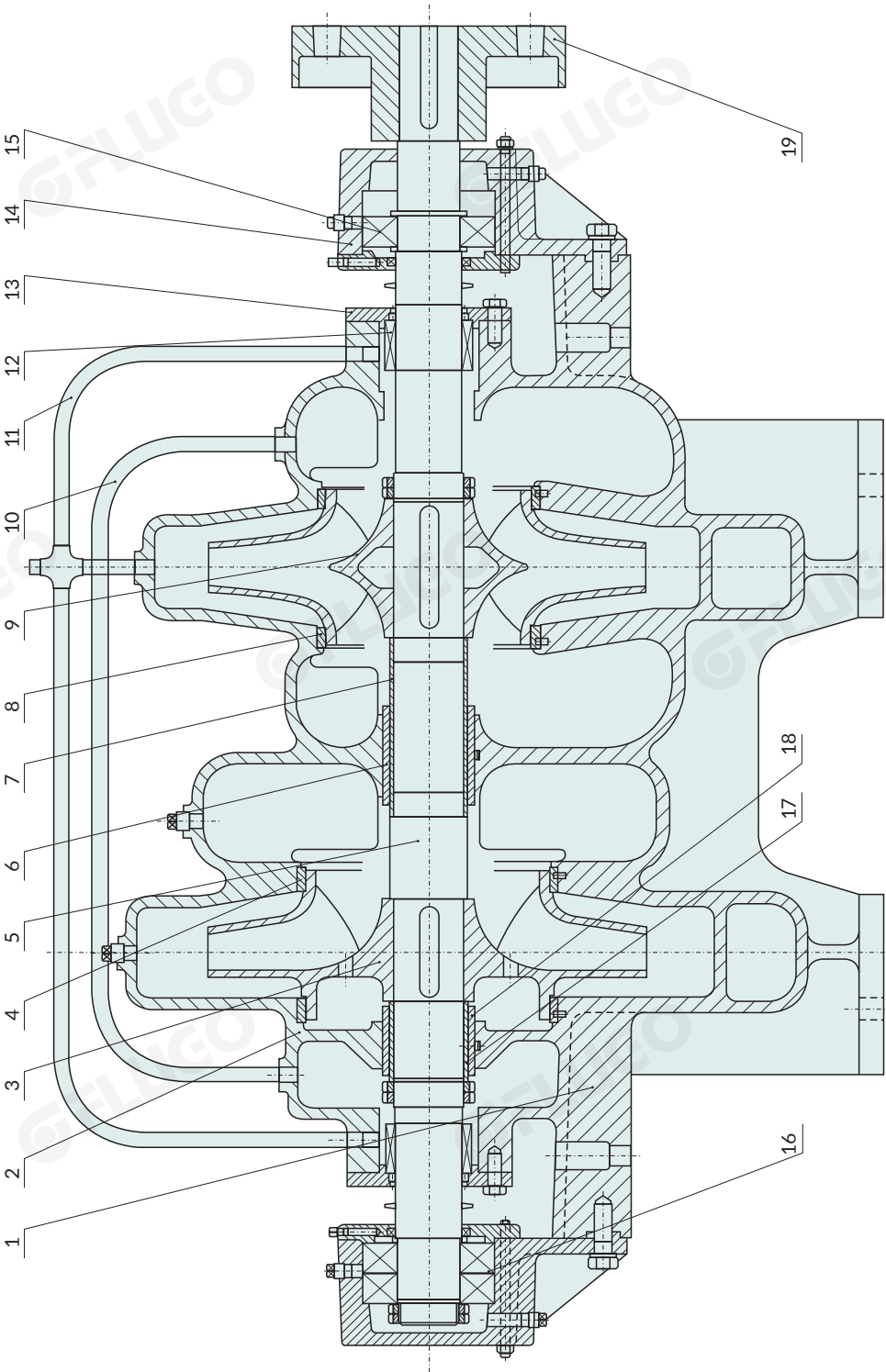
Part	Material	Part	Material
Pump body	◆ Castiron HT250	Shaft	◆ Carbon steel 40Cr
	Magnesium iron QT400-18		Stainless steel 2Cr13
	Cast steel ZG230-450		
Pump cover	◆ Cast steel HT250	Seal ring	◆ Cast steel HT200
	Magnesium iron QT400-18		Stainless steel 2Cr13
	Cast steel ZG230-450		Magnesium iron QT400-18
Impeller	◆ Castiron HT250		
	Magnesium iron QT400-18		
	Stainless steel 1Cr18Ni9Ti		
	Cast steel ZG230-450		

◆ denotes general supply, to be supplied as request.

Schematic Drawing of Pump Turning



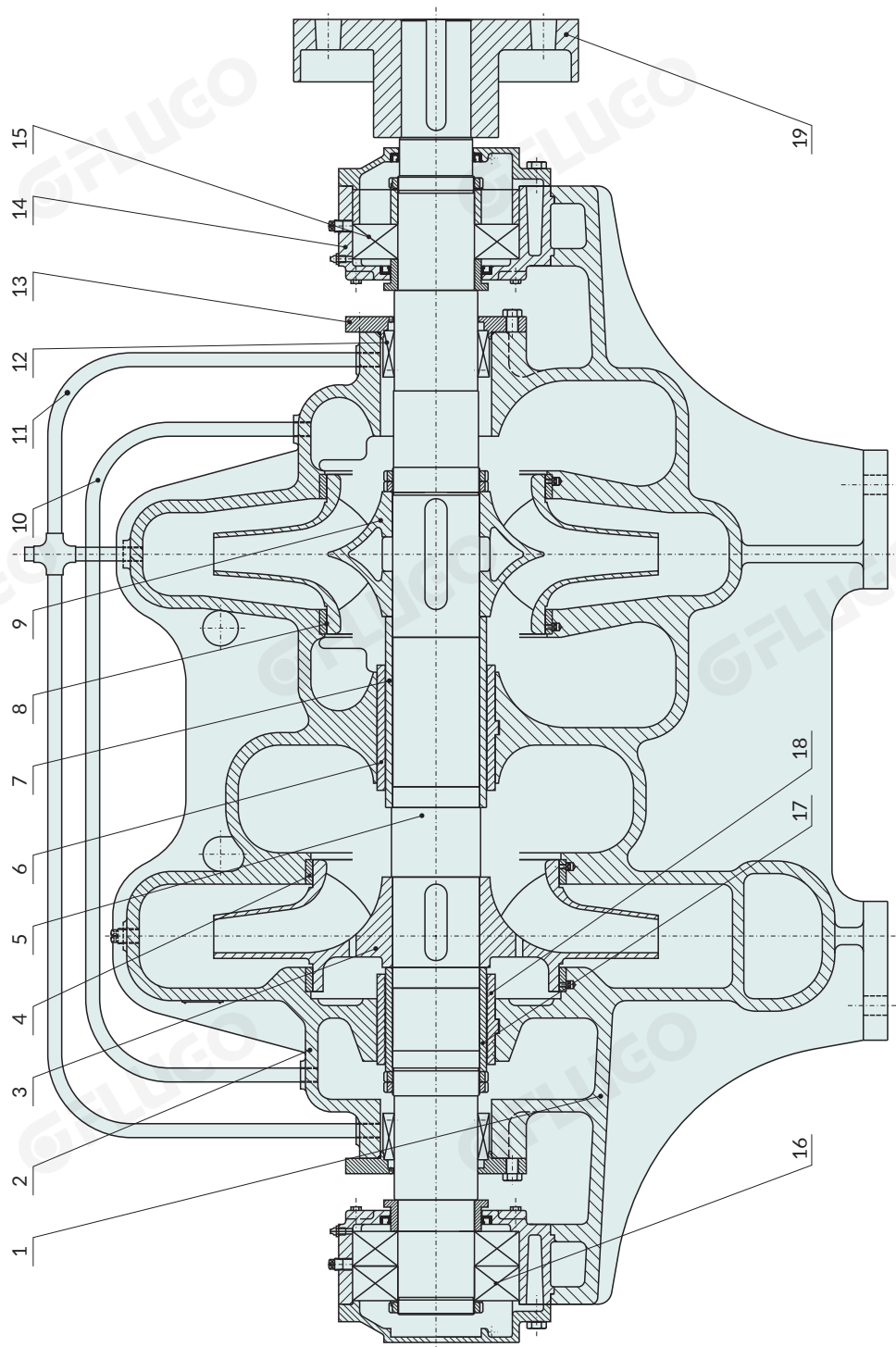
Pump Structure Drawing



Structural diagram 1 (for SLOW150-570×2 and SLOW200-530×2)

1	Pump casing	2	Pump cover	3	Secondary-stage impeller	4	Seal ring	5	Shaft	6	Interstage cover	7	Shaft sleeveA	8	Seal ring	9	Primary-stage impeller	10	Balancing water pipe
11	Water-sealed pipe	12	Mechanical seal	13	Gland of mechanical seal	14		15	Bearing body	16	Bearing	17	Shaft sleeveB	18	Releasing cover	19	Clutch		

Pump Structure Drawing



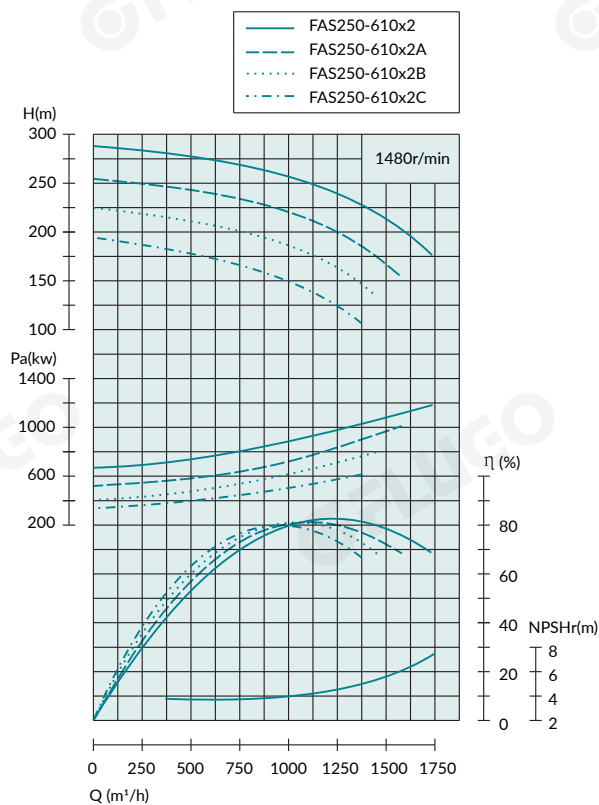
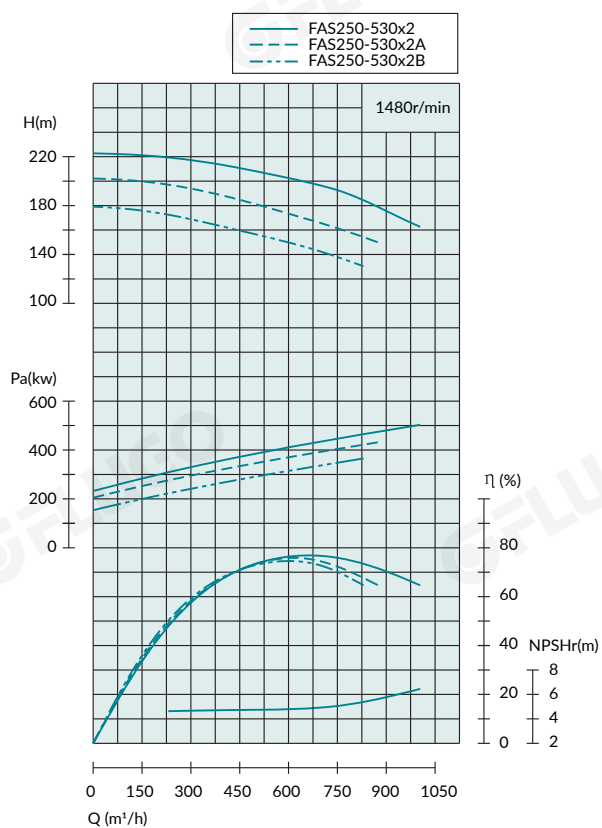
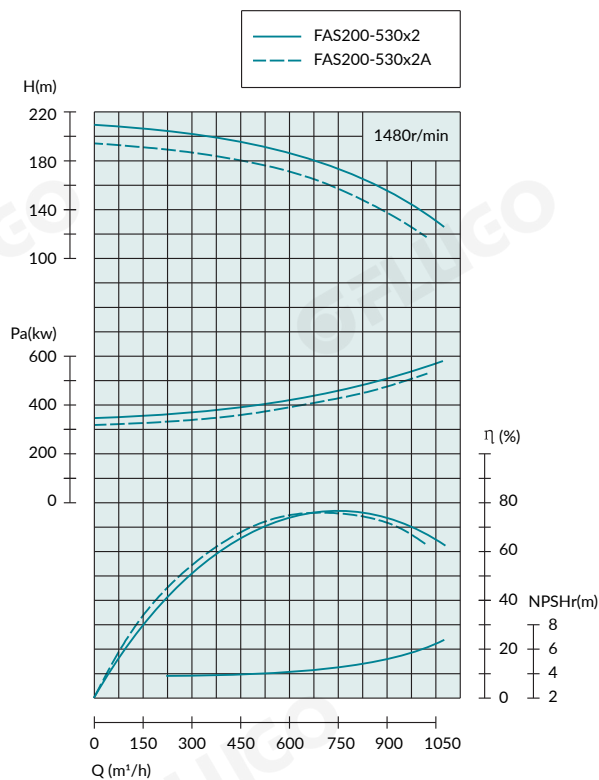
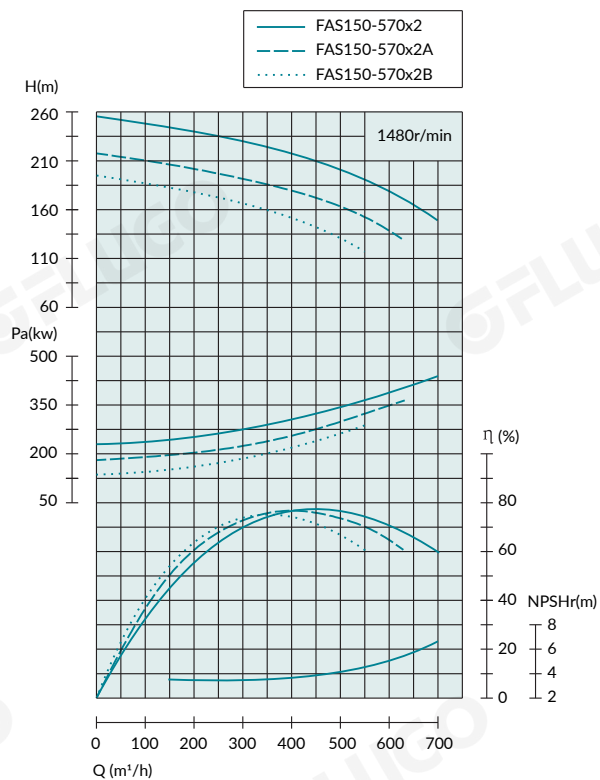
Structural diagram 2 (for SLOW250-610×2)

1	pump casing	2	Water-sealed pipe	3	Pump cover	4	Secondary-stage impeller	5	Seal ring	6	Shaft	7	Interstage cover	8	Shaft sleeve A	9	Seal ring	10	Primary-stage impeller	11	Balancing water pipe
12	Mechanical seal	13	Gland of mechanical seal	14	Bearing body	15	Bearing	16	Bearing	17	Bearing	18	Releasing cover	19	Clutch						

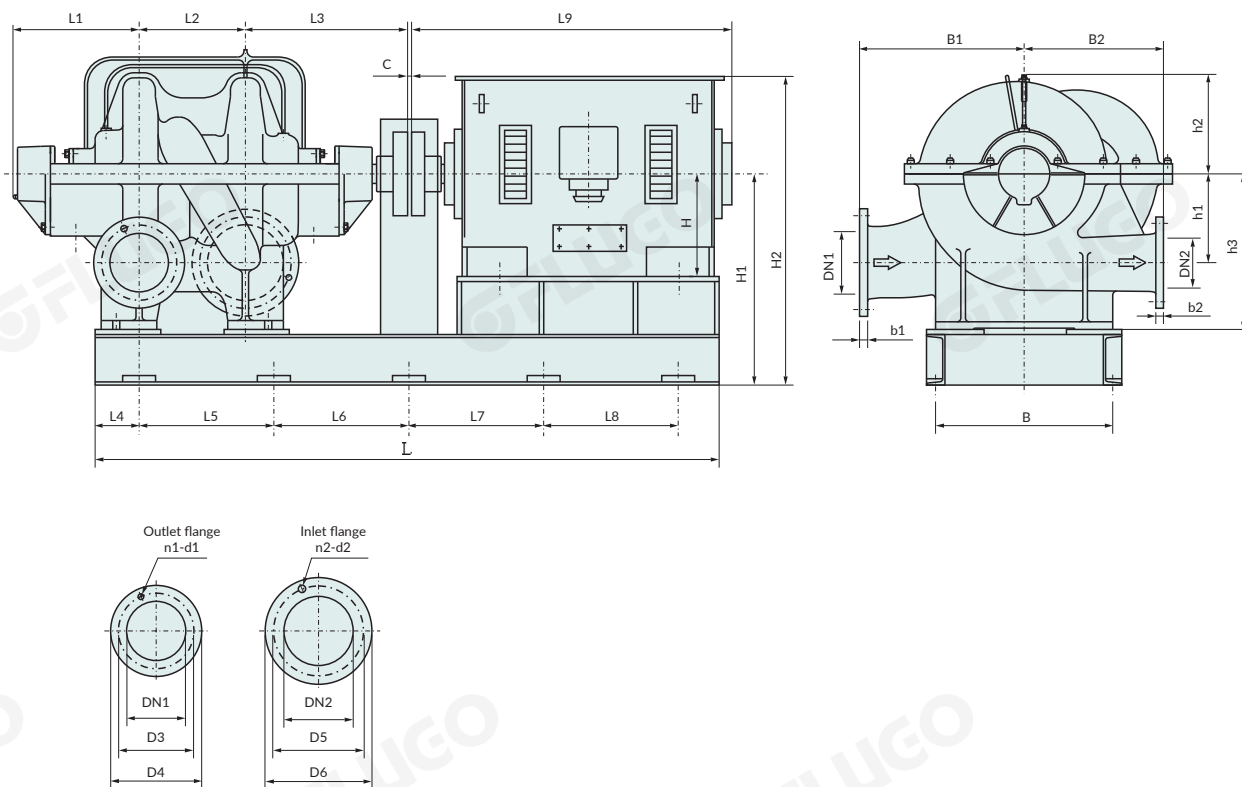
Performance Data

Pump Type	Q		H	N	P	η	(NPSH) r	W
	(m ³ /h)	(L/s)	(m)	(r/min)	(Kw)	(%)	(m)	KG
FAS150-570×2	320 450 580	89 125 161	228 210 184	1480	450	77	4	1760
FAS150-570×2A	280 400 520	78 110 144	194 180 160	1480	355	76		
FAS150-570×2B	240 350 460	67 97 128	172 160 142	1480	280	75		
FAS200-530×2	600 760 950	167 211 264	185 170 148	1480	560	78	4.2	2200
FAS200-530×2A	550 740 900	153 206 250	178 160 139	1480	500	77		
FAS250-530×2	558 790 1000	155.0 219.4 277.8	205 188 163	1480	630	76	7	
FAS250-530×2A	511 730 876	141.9 202.8 243.3	178 164.5 150	1480	560	75		
FAS250-530×2B	479.5 685 822	133.2 190.3 228.3	157 145 131	1480	450	74		
FAS250-610×2	900 1250 1550	250 347 431	262 240 206	1480	1120	83	4.4	2800
FAS250-610×2A	800 1150 1400	222 319 389	228 210 180	1480	900	82		
FAS250-610×2B	750 1080 1300	208 300 361	200 180 158	1480	800	81		
FAS250-610×2C	700 1000 1200	194 278 333	170 150 128	1480	560	80		

Performance Curve



Installation Overall Dimensions Drawing

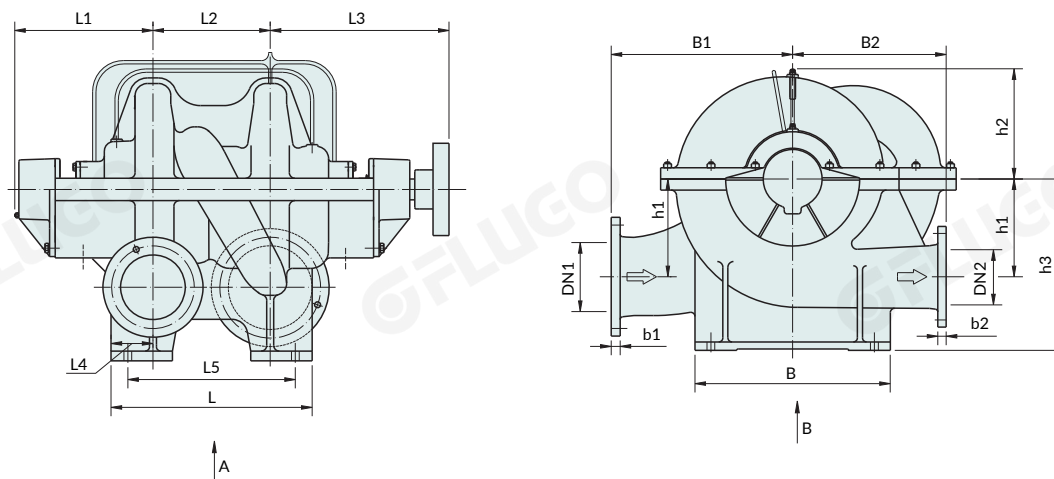


Pump Type	Motor Model	Motor Power	Motor Voltage	L	L1	L2	L3	L4	L5	L6	L7	L8	L9	B	B1	B2	H	H1	H2	h1	h2	h3	C	Anchor Bolt	Motor Weight
FAS150-570 X 2	Y400-4	400	6KV	3050	500	420	650	160	910	910	910	--	1920	840	600	500	400	730	1180	300	400	530	4	8-M24 X 400	2700
FAS150-570 X 2A	Y355-4	315	6KV	2930	500	420	650	160	870	870	870	--	1790	740	600	500	355	730	1140	300	400	530	4	8-M24 X 400	2130
FAS150-570 X 2B	Y355-4	250	6KV	2930	500	420	650	160	870	870	870	--	1790	740	600	500	355	730	1140	300	400	530	4	8-M24 X 400	2040
FAS200-530 X 2	Y400-4	560	6KV	3110	500	470	660	160	930	930	930	--	1920	840	650	550	400	800	1250	350	400	600	6	8-M24 X 400	3010
FAS200-530 X 2A	Y400-4	500	6KV	3110	500	470	660	160	930	930	930	--	1920	840	650	550	400	800	1250	350	400	600	6	8-M24 X 400	2890
FAS250-610 X 2	Y500-4	1120	6KV	3600	590	550	770	160	810	810	810	810	2200	1060	650	550	500	850	1400	350	500	650	6	10-M30 X 600	4500
FAS250-610 X 2A	Y450-4	900	6KV	3430	590	550	770	160	775	775	775	775	2000	920	650	550	450	850	1350	350	500	650	6	10-M30 X 600	3580
FAS250-610 X 2B	Y450-4	800	6KV	3430	590	550	770	160	775	775	775	775	2000	920	650	550	450	850	1350	350	500	650	6	10-M30 X 600	3440
FAS250-610 X 2C	Y400-4	560	6KV	3300	590	550	770	160	1000	1000	1000	--	1920	840	650	550	400	850	1300	350	500	650	6	8-M24 X 400	3010

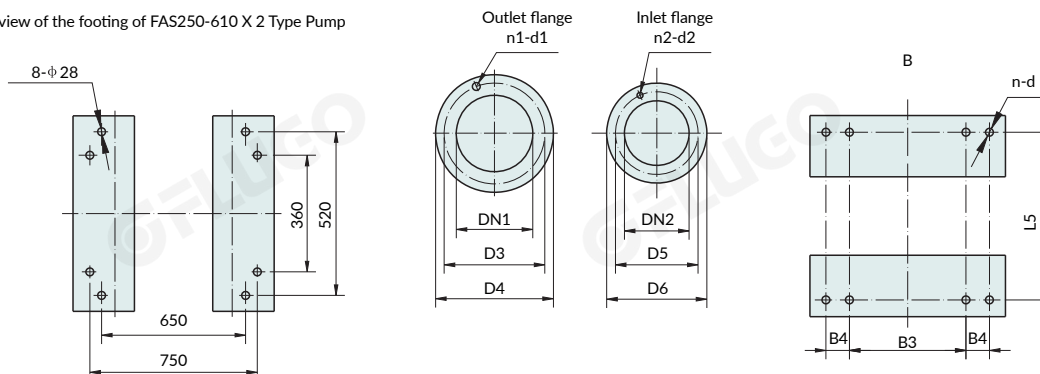
Pump Type	Inlet Flange						Outlet Flange					
	DN1	D3	D4	b1	n1-d1	Pressure Grade	DN2	D5	D6	b2	n2-d2	Pressure Grade
FAS150-570 X 2	200	310	360	34	12- ϕ 28	2.5MPa	150	250	300	34	8- ϕ 28	4.0MPa
FAS200-530 X 2	250	370	425	36	12- ϕ 31	2.5MPa	200	310	360	34	12- ϕ 28	2.5MPa
FAS250-610 X 2	300	430	485	40	16- ϕ 31	2.5MPa	250	385	450	44	12- ϕ 34	4.0MPa

Performance Curve

Overall dimension drawing of single pump



A view of the footing of FAS250-610 X 2 Type Pump



Pump Type	Overall dimension drawing of single pump													Footing dimension				Pump Weight		
	L	L1		L2	L3		L4	B	B1	B2	h1	h1'	h2	h3	L5	B3	B4	n-d1	Pump	Water content
FAS150-570×2	720	450	470	420	650	630	150	700	600	500	300	300	400	530	530	600	-	4-φ 28	1760	1960
FAS200-530×2	800	450	480	470	660	630	150	800	650	550	350	350	400	600	640	700	-	4-φ 28	2200	2410
FAS250-530×2	800	675	650	450	870		170	800	650	550	350	380	540	620	650	460	120	8-φ 35		
FAS250-610×2	850	590		550	770		150	600	650	550	350	350	500	650	-	-	-	8-φ 28	2800	3060

Pump Type	Inlet Flange						Outlet Flange					
	DN1	D3	D4	b1	n1-d1	Pressure grade	DN2	D5	D6	b2	n2-d2	Pressure grade
FAS150-570 × 2	200	310	360	34	12-φ 28	2.5MPa	150	250	300	34	8-φ 28	4.0MPa
FAS200-530 × 2	250	370	425	36	12-φ 31	2.5MPa	200	310	360	34	12-φ 28	2.5MPa
FAS250-530 × 2	300	410	460	32	12-φ 28	1.6MPa	250	370	425	36	12-φ 31	2.5MPa
FAS250-610 × 2	300	430	485	40	16-φ 31	2.5MPa	250	385	450	44	12-φ 34	4.0MPa

Transportation and Hoisting of Pump

- ☐ Pump, motor and base shall be packaged separately and firmly fixed on the conveyer.
- ☐ Hook on the cover of water pump is only for hoisting pump cover, not for the whole pump.
- ☐ Hanging ring on motor is only for hoisting motor, not for the whole pump set.
- ☐ For hoisting large pump, do not hoist the whole pump set at the same time, but pump, motor and base separately.

Installation Pump

1. Pump and motor with public base

- 1) Concrete shall be firm enough before installation, and the surface shall be smooth and even.
- 2) Insert anchor bolt into the model hole of foundation, and place the base on the foundation. Remain distance of 40 ~ 50 mm between base and foundation, and adjust the base with plug or adjusting screw to make it horizontal.
- 3) It is necessary to grout the foundation bolt and base to make them firm. (The base must be grouted)
- 4) Screw down anchor bolt evenly.
- 5) Place the motor and pump on the base, adjust the concentricity of the two axles accurately, and screw down pump foot and anchor bolt of motor at the same time.

2. Pump and motor without public base

- 1) Insert anchor bolt into pre-model hole of foundation, and place the pump on the foundation, plug under pump foot, and then adjust the horizontal of pump shaft at axle end with level meter.
- 2) Motor installation is identical with pump.
- 3) Correct the concentricity of the two axles accurately.
- 4) Grout foundation bolt to make it firm.
- 5) Screw up anchor bolt and then recheck the concentricity of the two axles.

3. Correct the concentricity of pump shaft and motor shaft.

Method : check the external diameter and end face of clutch with vernier caliper or micrometer caliper, turn measuring tool at 90° evenly in each measurement. The machine set is well aligned if end face deviation and radiator; deviation of clutch are separately less than 0.04 mm and 0.1 mm.

Start, Operation, and Stop of Pump

1. Check the following items before starting the pump.

- 1) Whether all the instrument and meters work accurately;
- 2) Whether the base firmly connects with the foundation;
- 3) Whether the clutch is well aligned;
- 4) Whether the pipeline is connected as request;
- 5) Whether the motor is installed according to operational instructions;
- 6) Whether the bearing is lubricated with grease;
- 7) Whether the air in the pump is exhausted;
- 8) Overhaul and replace mechanical seal if with large leakage;
- 9) Check whether turning direction of pump is identical with that of motor by inching the motor, Frequently starting pump is prohibited.

2. Start

The pump running dry is prohibited!

Outlet valve shall be closed after fully exhaustion of pump and before starting the pump. Fully open inlet valve, close the cock of pressure gauge to prevent pressure gauge from being damaged due to instant start and sudden rising pressure. Start the motor after finishing the following procedures. Open the cock of pressure gauge when the motor runs at normal rotary speed. Rising pressure value will be seen through pressure gauge and the open outlet valve slowly. Start the motor following relative operational instructions if it does not start directly. Note : The outlet valve can only be closed when the pump is not the point specified in the contract, adjust it with valve.

3. Operation

The pump must work within allowable scope, not the scope with low discharge. If it runs long-term within such scope, machine load will increase greatly, making parts fail in standing. However, instant working within this scope is allowable, for example, starting the machine.

4. Stop

Close the cock of pressure gauge and outlet gate valve and open inlet valve. Ensure that machine set stops mildly when you stop the motor. If the pump is out of work for long time, close inlet valve, demount water pump, dry up the water on the parts, and then apply antirust oil to processing surface and keep it well. Start the pump for about five minutes every month or three months to ensure the pump start at all time and avoid deposit producing in the pump or pump inlet. Completely exhaust liquid in the pump if it is out of use for long time and at low ambient temperature.

Transportation and Hoisting of Pump

- ☐ Pump, motor and base shall be packaged separately and firmly fixed on the conveyer.
- ☐ Hook on the cover of water pump is only for hoisting pump cover, not for the whole pump.
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- 3) It is necessary to grout the foundation bolt and base to make them firm. (The base must be grouted)
- 4) Screw down anchor bolt evenly.
- 5) Place the motor and pump on the base, adjust the concentricity of the two axles accurately, and screw down pump foot and anchor bolt of motor at the same time.

2. Pump and motor without public base

- 1) Insert anchor bolt into pre-model hole of foundation, and place the pump on the foundation, plug under pump foot, and then adjust the horizontal of pump shaft at axle end with level meter.
- 2) Motor installation is identical with pump.
- 3) Correct the concentricity of the two axles accurately.
- 4) Grout foundation bolt to make it firm.
- 5) Screw up anchor bolt and then recheck the concentricity of the two axles.

3. Correct the concentricity of pump shaft and motor shaft.

Method : check the external diameter and end face of clutch with vernier caliper or micrometer caliper, turn measuring tool at 90° evenly in each measurement. The machine set is well aligned if end face deviation and radiator; deviation of clutch are separately less than 0.04 mm and 0.1 mm.

Disassembly and Assembly of Pump

1. Disassembly and assembly of structural diagram 1

- 1) Drain away liquid in the pump by closing inlet and outlet valves and opening the drainage and deflation screw plugs;
- 2) Disassemble auxiliary piping;
- 3) Disassemble the clutch protector;
- 4) Disassemble fasteners between the clutch of both pump and motor;
- 5) Loosen mechanical gland;
- 6) Disassemble the coupling bolt and two taper pins on pump cover and body. Remove pump cover and place it in safety place;
- 7) Loosen the connecting bolts between bearing gland and bearing body, and remove the connecting bolts between bearing body and pump body;
- 8) Withdraw the bearing bodies at two sides from the notch of pump body, and sling up the rotor;
- 9) Haul down the clutch by wheel puller;
- 10) Disassemble bearing body of non-shaft-extension end, lock nut, bearing body of shaft-extension end and axial circlip;
- 11) Haul down the bearings at two sides by wheel puller;
- 12) Disassemble the water deflector;
- 13) Disassemble mechanical seal carefully to avoid damage;
- 14) Disassemble the lock nut, axle sleeve and impeller. It is allowed to knock on the impeller hub with hammer or wood bar;
- 15) Assembly is opposite to the above procedure.

2. Disassembly and assembly of structural diagram 2

- 1) Drain away liquid in the pump by closing inlet and outlet valves and opening the drainage and deflection screw plugs;
- 2) Disassemble auxiliary piping;
- 3) Disassemble the clutch protector;
- 4) Disassemble fasteners between the clutches of both pump and motor;
- 5) Loosen mechanical gland;
- 6) Disassemble the coupling bolt and two taper pins on the pump cover and body. Remove the pump cover and place it in safety place;
- 7) Remove the connecting bolts between the bearing body and pump body, and then sling up the rotor;
- 8) Haul down the clutch by wheel puller;
- 9) Disassemble the bearing body gland and lock nut;
- 10) Pull and hold the bearing retaining cover with special wheel puller, then haul down the complete bearing and bearing body (be sure to keep in mind);
- 11) Hold on the bearing outer ring by through bolt, then eject the bearing from the bearing body;
- 12) Disassemble mechanical seal carefully to avoid damage;
- 13) Disassemble the lock nut, axle sleeve and impeller. It is allowed to knock on the impeller hub with hammer or wood bar;
- 14) Assembly is opposite to the above procedure.

Maintenance of Pump

- 1) The machine shall be maintained and checked by qualified personnel;
- 2) Pay attention to three-phase current value;
- 3) The pump must run stably;
- 4) The pump running dry is prohibited.
- 5) To prevent heating up of medium, the pump is not allowed to run for long time when the outlet valve is closed;
- 6) Regularly check the connecting bolt. If loose, tighten timely.
- 7) Do not close the inlet valve when the pump is running;
- 8) Regularly check and start up emergency pump;
- 9) Check the elastic component on the clutch, and change it if any abrasion occurs;
- 10) Ensure that the balancing water pipe is expedite. If it is clogged up, the axial force will increase and bearing temperature will rise.
- 11) If ambient temperature is up to 30°C, the bearing temperature shall not exceed 80°C. It is advisable that the bearing grease shall occupies 1/3 ~ 1/2 area of bearing body and add the oil once every three months.

Reference Table for Pipeline Loss

Brief table for the frictional loss of a straight pipe (for evaluation). The lost meters of a 100m straight pipe takes the newly cast iron pipe as the standard and multiple for the old one.

Limit of the maximum flow for a pipe with a certain diameter

Note: For instance, a 100mm diameter pipe, the foot valve has a $100 \times 100 = 10000\text{mm}^2$ 100mm diameter when which is converted into 100 times that of that of the pipe's diameter. Suppose the flow is 8L/s , looked into the above table, the loss of the straight pipe is 1.3m each 100m, then the one for 100mm is 0.13m , that is, for a 100mm foot valve with a flow 8L/s , its head loss is 0.13m .

Note: The pipeline loss would be made greatly increased once the limit is over



Double-Suction Split Casing Pump

Authorized Distributor